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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/757,784	01/10/2001	Roger W. Schmitz	17310-226275	7726

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EXAMINER

SONG, HOON K

ART UNIT

PAPER NUMBER

2882

DATE MAILED: 03/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/757,784

Applicant(s)

SCHMITZ ET AL.

Examiner

Hoon K Song

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 10-18, 20, 32-40 and 47 is/are rejected.
- 7) ☒ Claim(s) 6-9, 19, 21-31 and 41-46 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent ~~granted on an application for patent by another filed in the United States before the invention by the~~ applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5, 10-18, 20, 32-40 and 47 rejected under 35 U.S.C. 102(e) as being anticipated by Almogy (US 6236454B1).

Regarding claims 1 and 47, Almogy teaches an apparatus comprising:

a light source (56) for producing a light beam;

optics (60) for configuring the light beam as first and second differentiable beam portions, and for directing the first and second beam portions toward a target to be measured, and

a detection component (76) positioned to intercept first and second images created by simultaneous incidence of the first and second beam portions at first and second locations, respectively, on the target, and to provide output information representative of the position of the target at the first and second locations (figure 4, abstract).

Regarding claim 2, Almogy teaches that the detection component comprises first (76a) and second (76b) detectors positioned to intercept the first and second images, respectively.

Regarding claim 3, Almogy teaches that the first and second detectors comprise position sensitive detectors for providing an output signal representative of the position of the first and second beam images (abstract).

Regarding claim 4, Almogy teaches that the optics include a polarizer for causing the first and second differentiable beam portions to have first and second different polarizations and create differently polarized first and second images on the target, respectively, and wherein first and second detector optical paths are polarization sensitive with the first detector optical path capable of passing the polarized first image created by the polarized first beam portion on to the first detector and the second detector optical path capable of passing the polarized second image created by the polarized second beam portion on to the second detector (column 6 line 9).

Regarding claim 5, Almogy teaches that the detection component further comprises an imaging lens (74) for focusing the differently polarized first and second images created by the first and second polarized beam portions, the imaging lens interposed between the target and the first and second detectors (figure 4).

Regarding claim 10, Almogy teaches that the imaging lens comprises a plurality of imaging lenses configured to cooperate as a lens set (figure 6).

Regarding claim 11, Almogy teaches that the first and second detectors communicate with a microprocessor that calculates position data for the first and second locations on the target (column 5 line 11, abstract).

Regarding claim 12, Almogy teaches that the optics comprise a projection lens for focusing the light beam toward the target (figure 4).

Regarding claim 13, Almogy teaches that the optics further comprise a beam splitting device (56) that splits the focused light beam into first and second differentiable portions (column 3 line 63+).

Regarding claim 14, Almogy teaches that the optics includes a polarizer and wherein the first and second differentiable portions of the laser beam are polarized differently from one another (column 6 line 9+).

Regarding claim 15, Almogy teaches that the optics further include a beam directing device (58) that directs the first and second differentiable portions in a desired direction (figure 4).

Regarding claim 16, Almogy teaches that the beam splitting device comprises the beam directing device and directs both first and second differentiable portions in substantially parallel paths toward the target (figure 4).

Regarding claim 17, Almogy teaches that the beam splitting device comprises a polarized beam splitting component and a reflecting component (figure 4).

Regarding claim 18, Almogy teaches that the beam splitting device comprises a polarizing beam splitter that splits the light beam into first and second polarized beam portions and directs the second beam portion toward the target, a quarter wave plate

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that rotates at least the first beam portion, and a movable mirror that reflects the rotated first beam portion back through the quarter wave plate and toward the target parallel to the second beam portion, the quarter wave plate again rotating the previously rotated first beam portion such that the rotated first beam portion is 90 degrees out of phase with the second beam portion (well known, column 6 line 9+)

Regarding claim 20, Almogy teaches that the movable mirror is adjustable to space the first and second locations on the target relative to each other.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 32-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Swift (US 5636013) in view of Almogy.

Regarding claims 32-40, Swift teaches a method of measuring a z-height distance at two locations on a disk drive head suspension comprising the steps of

- providing a light beam (13);
- directing the first and second differentiable beam portions toward the two locations to be measured on the head suspension;
- intercepting image created by beam portion on the target with a detection component; and

analyzing positional data collected by the detection component upon interception of the first and second images to calculate a desired z-height distance measurement for the two locations on the head suspension (column 3 line 37+).

However, Swift fails to teach splitting the light beam into first and second differentiable beam portions and directing the two separate beams to separate locations.

Almog teaches the beam splitter to location two beams in separate locations (the details are described above) (figure 4).

In view of Almog, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to adopt the beam splitter in order to illuminate multiple spots on a surface to be scanned and each imaging unit collects light from one viewing perspective and separately detects light scattered from the multiple spots (column 2 line 63+). Accordingly, one would be motivated to adopt the beam splitter because it would provide spatially separates between multiple scan lines scanned at generally the same time and which temporally separate pixels within the multiple scan lines (column 3 line 30+).

Allowable Subject Matter

Claims 6-9, 19, 21-31, 41-46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: None of the prior art teaches or suggests partial reflector or Wollston prism to direct reflected beams to first and second locations.

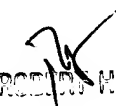
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoon K Song whose telephone number is 703-308-2736. The examiner can normally be reached on 8:30 AM - 5 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on 703-305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-4858 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Hoon K. Song
March 19, 2003


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